

DuPont Pyralux[®] KP

All-Polyimide Flexible Laminate

A family of High-Performance Adhesiveless Laminates for Flexible Printed Circuit Applications

Product Description

Pyralux[®] KP double-sided, copper-clad laminate is an all-polyimide composite of polyimide film bonded to copper foil. This material system is ideal for multilayer FPC and LCD Module Circuit applications which require advanced material performance, temperature resistance, and high reliability. Currently offered dielectric thickness of 25um, Pyralux[®] KP provides designers, fabricators, and assemblers a versatile option for wide variety of flexible circuit constructions.

- Excellent Dimensional Stability
- Excellent thermal resistance because of all polyimide
- High Cu-polyimide adhesion strength
- Good flex & Bending performance

Construction

Table 1 lists typical constructions. The product code must be used when ordering copper-clad laminates from DuPont.

Table 1 Pyralux[®] KP product offering

Product code	Dielectric Thickness (μm)	Copper Thickness (μm)
KP122512E	25	12

*Add "E" to the end of the code to specify electro-deposited copper (e.g. KP122512E).

Typical Data

Typical data is shown in Table 2.

Table 2 Piralux[®] KP Material Properties
[Dielectric thickness: 25um, Copper thickness: 12um]

Laminates Property	IPC-TM-650 (or other)	KP122512E
Adhesion to Cu (Peel Strength) As fabricated, N/mm After solder, N/mm	Method 2.4.9	0.9
MIT bending, cycles R=0.8mm	JIS C6471	800
Dimensional Stability (MD/TD) After etching, % After 150°C/30min. aging, %	Method 2.2.4	+/- 0.05
Solder Float at 288°C/10sec.	Method 2.4.13 With pre-bake at 135°C/60min	Pass
Tensile Modulus (GPa)	IPC TM-650 2.4.19	MD: 4.36 TD: 4.69
Elongation [%]	IPC TM-650 2.4.19	MD: 40.6 TD: 53.2
Tear strength-propagation [gf]	IPC TM-650 2.4.17.1	MD: 4.96 TD: 5.38
Moisture absorption [%]	TGA	< 1%
Volume Resistivity [ohm-cm]	IPC TM-650 2.5.17	2.43*10 ¹⁶
Surface Resistivity [ohm]	IPC TM-650 2.5.17	5.67*10 ¹⁶
Dk [1 GHz]	ASTM D-149	3.53
Df [1 GHz]	ASTM D-149	0.002

* The value given herein is not specification but typical value based on data believed to be reliable.

* The value in some of the properties may be changeable by different test method and conditions.

Packaging

Piralux[®] KP copper-clad laminate are supplied on 19.7/9.8 inch (500 mm/250mm) wide by 328 liner ft (100m) long rolls.

Processing

Piralux[®] KP copper-clad laminate are fully compatible with all conventional flexible circuit fabrication processes including oxide treatment and wet chemical plated-through-hole desmearing. Fabricated circuits can be cover coated and laminated together to form multilayers or bonded to heat sinks using polyimide, acrylic, or epoxy adhesives.

Storage

Piralux[®] KP copper-clad laminate does not require refrigeration and will retain its original properties for a minimum of two years when stored in the original packaging at temperatures of 4-29°C and below 70% relative humidity. The material should keep clean and well protected from physical damage.

Safe Handling

Anyone handling Pyralux® KP should wash their hands with soap before eating, smoking, or using restroom facilities. Although DuPont is not aware of anyone developing contact dermatitis when using Pyralux® KP products, some individuals may be more sensitive than others. Gloves, finger cots, and finger pads should be changed daily.

Pyralux® KP is fully cured when delivered. However, lamination areas should be well ventilated with a fresh air supply to avoid build-up from trace quantities of residual solvent (typical of polyimides) that may volatilize during press lamination. When drilling or routing parts made with Pyralux® KP, provide adequate vacuum around the drill to minimize worker exposure to generated dust.

As with all thin, copper-clad laminates, sharp edges present a potential hazard during handling. All personnel involved in handling Pyralux® KP clads should use suitable gloves to minimize potential cuts.

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